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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/779,685

02/18/2004

Robert Struijs

0594-1001-1

8560

466

7590

08/14/2006

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EXAMINER

FREJD, RUSSELL WARREN

ART UNIT

PAPER NUMBER

2128

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/779,685

Applicant(s)

STRUJIS, ROBERT

Examiner

Russell Frejd

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2.18.04</u> . | 6) <input type="checkbox"/> Other: _____ |

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Examination of Application #10/779,685

1. Claims 1-52 of application 10/779,685, filed on 18-February-2004, are presented for examination.

Specification Objections

2. The description of this application contains multiple computer program listings (see Appendices 1-12), at least some of which consist of more than three hundred (300) lines (see Appendices 3, 5, 9, 11 and 12). In accordance with 37 CFR 1.96(c), a computer program listing printout of more than three hundred lines must be submitted as a computer program listing appendix on compact disc conforming to the standards set forth in 37 CFR 1.96(c)(2) and must be appropriately referenced in the specification (see 37 CFR 1.77(b)(4)). Accordingly, applicant's are required to cancel at least the computer program listings appearing in the specification in Appendices 3, 5, 9, 11 and 12, file a computer program listing appendix on compact disc in compliance with 37 CFR 1.96(c), and insert an appropriate reference to the newly added computer program listing appendix on compact disc at the beginning of the specification.

Claim Rejections under 35 U.S.C. § 101

3. 35 U.S.C. 101 reads as follows:
Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.
- 3.1 Claims 1-52 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The invention claims (claim 1 preamble), "A method of

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simulating behavior of a flow interacting with an object, the method providing a simulated numerical representation in N dimensions, $N \geq 3$, that is composed of a plurality of approximated values at a multitude of points in at least a part of space where the flow interacts with the object, the approximated values being of a physical parameter u of the flow to which is associated a velocity field $\{\text{right arrow over } (a)\}$ which determines a preferential direction, by means of a numerical scheme wherein at least one spatial p^{th} derivative D_p , $p \geq 1$, of the parameter u is approximated at the points of the part of space."

3.2 MPEP Section 2106(IV)(B)(2)(b)(ii) provides that a statutory computer process is determined not by how the computer performs the process, but by what the computer does to achieve a practical application with a useful, concrete and tangible result. For example, a computer process that simply calculates a mathematical algorithm that models noise is nonstatutory, while a claimed process for digitally filtering noise employing the mathematical algorithm is statutory. The long line of cases in this area that are referred to in MPEP Section 2106(IV)(B)(2)(b)(ii) exemplify this requirement, by utilizing in the claim language, terms such as controlling, executing, changing and removing. In view of the aforementioned requirement and the interim guidelines for 101 eligibility, the Examiner respectfully contends that the claim language of independent claim 1 does not claim a practical application with a tangible result, that language claiming: **using** (emphasis added) for the part of space a discrete N -dimensional grid constructed by N families of coordinate lines;

computing, in at least one point P of the grid, called the point of computation, an approximated value $D_{\text{sub.p.sup.A}}$ of D_p with an error ϵ_n , by using values u_s of the parameter in a collection of grid points, called the stencil S , and computational functions, evaluated with the

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values $u_{sub.s}$, the computational functions depending on the numerical framework in which D_p is expressed,

choosing the computational functions for the approximated value $D_{sub.p.sup.A}$ in such a way that the approximated value $D_{sub.p.sup.A}$ is optimized for the preferential direction, and

wherein the stencil S contains at least one point situated outside all the coordinate lines passing through the point of computation P , and the stencil S contains at least a first point and a second point, the first point being defined by N first coordinate lines of the N families of lines, the second point being defined by N second coordinate lines of the N families of lines, and for at least one family N_i of the coordinate lines, the first coordinate line belonging to the family N_i is different from and not adjacent to the second coordinate line belonging to the same family N_i ; and

outputting the numerical representation that simulates, for the part of space, behavior of the flow interacting with the object.

3.3 For at least these reasons, the Examiner respectfully posits that the claims of the present invention do not meet the criteria for a statutory process. Accordingly, the claims are determined to be a method of simulating behavior of a flow interacting with an object, consisting solely of mathematical operations, converting one set of numbers into another set of numbers, whereby the method does not manipulate appropriate subject matter, and thus cannot constitute a statutory process (MPEP Section 2106(IV)(B)(2)(c)).

3.4 The Examiner respectfully posits that claims 1-52 of the present invention do not meet the criteria for a statutory process, as these claims are determined to be a program per se,

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consisting of software modules that implement the method of simulating behavior of a flow interacting with an object, whereby the method does not manipulate appropriate subject matter, and thus cannot constitute a statutory process (MPEP Section 2106(IV)(B)(2)(c)).

Allowed Claims

4. Claims 1-52 are deemed allowable over the prior art of record at this time, pending resolution of any rejections noted above.

Response Guidelines

5. A shortened statutory period for response to this action is set to expire **3 (three) months and 0 (zero) days** from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02, 710.02(b)).

5.1 **Any response to the Examiner in regard to this non-final action should be**

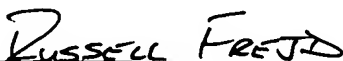
directed to: Russell Frejd, telephone number (571) 272-3779, Monday-Friday from 0530 to 1400 ET, or the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279. Inquires of a general nature or relating to the status of this application should be directed to the TC2100 Group Receptionist (571) 272-2100.

mailed to: Commissioner of Patents and Trademarks
P.O. Box 1450, Alexandria, VA 22313-1450

or faxed to: (571) 273-8300

Hand-delivered responses should be brought to the Customer Service Window, Randolph Building, 401 Dulany Street, Alexandria, VA, 22314.

Date: 3-August-2006



The signature is handwritten in dark ink, appearing to read 'Russell Frejd'.

**RUSSELL FREJD
PRIMARY EXAMINER**